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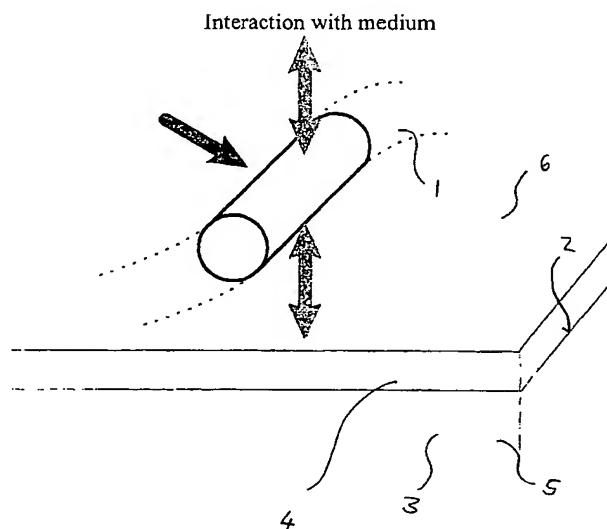
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(54) Title: METHOD FOR ARRANGING A POLYMER MOLECULE



(57) Abstract: The invention relates to a method for arranging a polymer molecule such as a biomolecule on a support, the method comprising the following steps: providing a substrate (3) having a surface (2); providing a surface layer (4) on said surface (2) of the substrate (3), said substrate (3) and said surface layer (4) providing a support (5); and placing a polymer molecule (1) on said surface layer (4) in a first position, said polymer molecule (1) having a first conformation on said surface layer (4); wherein said surface layer (4) is configured to adjust predefined molecular interaction between the polymer molecule (1) and said support (5) to allow fixing of the first conformation of the polymer molecule (1), dislocating at least part of the polymer molecule (1) across said surface layer (4) relative to said support (5) by an external force, and subsequently fixing the polymer molecule (1) on the surface layer (4).

# INTERNATIONAL SEARCH REPORT

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PCT/EP 03/10329

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 B01J19/00 C12Q1/68

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 06278 A (SIMON ADAM J) 20 February 1997 (1997-02-20) abstract page 1, line 8 - line 12 page 4, line 2 -page 5, line 27 page 14, line 28 -page 17, line 29; claims; figures 1,3 ---	1-27
X	US 5 079 169 A (CHU STEVEN ET AL) 7 January 1992 (1992-01-07) column 2, line 49 -column 3, line 66 column 8, line 5 -column 12, line 9 claims; figures 1,6 --- -/--	1-27

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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PCT/EP 03/10329

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 612 181 A (FOURMENTIN-GUILBERT JEAN E R) 18 March 1997 (1997-03-18) abstract column 1, line 43 -column 9, line 5; claims; figure 2 ---	1-27
X	US 5 314 829 A (COLES L STEPHEN) 24 May 1994 (1994-05-24) abstract column 1, line 15 - line 19 column 2, line 33 - line 63 column 3, line 10 -column 5, line 54; claims; figure 2 ---	1-27
X	US 5 851 769 A (GRAY JOE W ET AL) 22 December 1998 (1998-12-22) abstract column 4, line 6 -column 5, line 26 column 18, line 20 -column 21, line 19 ---	1-27
X	US 5 677 126 A (BENSIMON DAVID ET AL) 14 October 1997 (1997-10-14) abstract column 3, line 20 -column 10, line 44 ---	1-27
X	HIDENOBU NAKAO ET AL.: "Development of Novel Polymer-coated Substrates for Straightening and Fixing DNA" NANO LETTERS, vol. 2, no. 5, 1992, pages 475-479, XP002225163 cited in the application the whole document -----	1-27

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 03/10329

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9706278	A	20-02-1997	EP WO	0843739 A1 9706278 A1
				27-05-1998 20-02-1997
US 5079169	A	07-01-1992	NONE	
US 5612181	A	18-03-1997	FR AT DE EP JP	2648913 A1 121194 T 69018523 D1 0404682 A2 3128459 A
				28-12-1990 15-04-1995 18-05-1995 27-12-1990 31-05-1991
US 5314829	A	24-05-1994	NONE	
US 5851769	A	22-12-1998	NONE	
US 5677126	A	14-10-1997	FR FR AT AT AU AU AU CA CA CN CN DE DE EP EP EP WO WO JP JP NZ NZ US US US US US US US US US US	2716206 A1 2716263 A1 249045 T 248927 T 1712095 A 699136 B2 1814595 A 2182905 A1 2182906 A1 1144540 A ,B 1144561 A ,B 69531666 D1 69531667 D1 1369494 A2 0744028 A1 0743988 A1 9522056 A1 9521939 A1 9509056 T 9509057 T 279861 A 281255 A 6054327 A 6130044 A 2003175779 A1 6265153 B1 6294324 B1 5840862 A 6303296 B1 5846724 A 2002031774 A1
				18-08-1995 18-08-1995 15-09-2003 15-09-2003 29-08-1995 26-11-1998 29-08-1995 17-08-1995 17-08-1995 05-03-1997 05-03-1997 09-10-2003 09-10-2003 10-12-2003 27-11-1996 27-11-1996 17-08-1995 17-08-1995 16-09-1997 16-09-1997 28-07-1998 27-05-1998 25-04-2000 10-10-2000 18-09-2003 24-07-2001 25-09-2001 24-11-1998 16-10-2001 08-12-1998 14-03-2002